REMARKS

Claims 1, 2, 4, 6, 8, 10-12, 14 and 16-18 are pending in this application, of which claims 1, 2, 17 and 18 have been amended. No new claims have been added.

The claim amendments are supported in the specification as follows:

Page 7, lines 13-16 relate to the reflection-type polarizing film;

Page 8, lines 8 and 17 relate to utilization of incident light in all directions, and the retardation value and the direction of phase delay axis of the retardation film;

Page 9, line 19 to page 10, line 11 relate to compensating to be a substantially linearly polarized light, and reflecting by the reflection-type polarizing film;

Page 19, line 18 to page 21, line 13, relate to arrangement of a liquid crystal cell and a twisted retardation film; and

Page 20, line 14 to page 21, line 20, relate that the elliptically polarized light is compensated to be completely linearly polarized light by using the twisted retardation film and whole incident light is reflected by the reflection-type polarizing film.

Before turning to the cited references, a brief review of the claimed invention is in order.

The present invention provides a display device having a new displaying effect, by combining the reflection-type polarizing film and the STN liquid crystal cell which had advantages of a sharp optical characteristic to applied voltage and much amount of displaying information, providing bright metallic reflection light to a background portion or display portion. We know, by combining the reflection-type polarizing film and the twisted nematic liquid crystal cell, metallic reflection light

can be obtained, however, by replacing TN liquid crystal cell with STN liquid crystal cell carelessly, only dark metallic reflection light can be obtained.

Reflection by the reflection-type polarizing film performs to only linearly polarized light in the direction parallel to a reflection axis thereof, and the STN liquid crystal cell, which differs from the TN liquid crystal cell, put out an elliptically polarized light generally by birefringence action. Because the elliptically polarized light is formed of components of the linearly polarized light in all direction, and contains low reflectivity components by the reflection-type polarizing film.

In the present invention, after compensating the elliptically polarized light to be linearly polarized light using reflection light increasing means provided to the liquid crystal display device, the reflection axis of the reflection-type polarizing film is corresponded to the polarization direction of the linearly polarized light. So that strength of the reflection light by the reflection-type polarizing film, which is incident light from visible side to the display device, is improved and the purpose to utilize the excellent character of the STN liquid crystal cell is achieved

The Examiner has maintained from the previous Office Action all of the prior art rejections of claims 1, 2, 4, 6, 8, 10-12, 14 and 16-18 under 35 USC §103(a), and has added a new rejection, namely, the rejection of claim 1 under 35 USC §103(a) as unpatentable over **Ouderkirk et al.** (previously applied) in view of U.S. Patent 5,587,821 to Nakanishi et al. (hereinafter "**Nakanishi et al.**").

Applicants respectfully traverse these rejections.

As noted in Applicants' response of July 17, 2002, **Ouderkirk et al.** discloses a transflector which increases efficiency and brightness under both ambient and supplemental lighting conditions in visual display applications. In one embodiment, the transflector includes a reflective polarizing element that reflects one polarization of light and transmits the other. In an alternate embodiment, the transflector includes a reflective polarizing element and a diffusing element such that the transflector diffusely reflects light of one polarization and transits the other. The transflector is useful for both reflective and transflective liquid crystal displays.

The Examiner has admitted that **Ouderkirk et al.** fails to disclose the use of a super twisted nematic liquid crystal or a retardation film having the relation nx>nz>ny, but has cited **Nakanishi et al.** for teaching such a relation.

Applicants respectfully disagree. **Nakanishi et al.** discloses an LCD device constructed with an liquid crystal display element disposed between a pair of polarizing plates, and with phase difference plates disposed between each polarizing plate and the liquid crystal display element. The phase difference plates are selected so that $nx \geq nz > ny$ is satisfied and the Nz value is in the range of $0 \leq Nz \leq 0.5$. The liquid crystal display element is constructed by placing a liquid crystal layer between substrate members prepared by forming transparent electrodes and orientation films in the pair of light transmitting plates, and the liquid crystal layer sandwiched between the transparent electrodes is used as picture elements.

The Examiner has corresponded the phrase difference plates 23, 24 to the retardation film of the instant application. If so, the relation nx≥nz>ny disclosed for the phrase difference plates 23, 24 in **Nakanishi et al.** is not the same as the relation nx>nz>ny for the retardation film, as recited in claim 1 of the instant application. Furthermore, although **Nakanishi et al.** discloses that the application to reflexive types is "within the scope of the [**Nakanishi et al.**] invention", there is no disclosure of a reflection-type polarizing film, as in the present invention, in which:

> ...[S]aid reflection-type polarizing film is disposed in such a manner that the transmission axis thereof is in a direction orthogonal to or parallel with a direction of polarization of a light compensated to be a substantially linearly polarized light during passage through said absorption-type polarizing film, said retardation film, and said super twisted nematic liquid crystal cell in a state with no voltage applied.

This recitation appears in claim 1 of the instant application and is based on the description from page 9, line 18 to page 10, line 11 and from page 20, line 14 to page 21, line 20 of the specification for the "orthogonal" case, and from the description from page 11, line 24 to page 12, line 5 for the "parallel" case.

The "orthogonal" case corresponds to the structure for a colorful display in a metallic background, and the "parallel" case corresponds to that for a metallic display in a colorful background, as disclosed on page 2, lines 8-13 of the specification.

Furthermore, none of the cited references teaches, mentions or suggests that the retardation film and the reflection-type polarizing film constitute a reflection light increasing means which increases the intensity of reflected light which is transmitted from a visible side of the super twisted nematic liquid crystal cell and reflected to the visible side by the reflection-type polarizing film, as in the present invention.

Accordingly, claims 1-2, 17 and 18 have been amended to recite this distinction, and the prior art rejections should all be withdrawn.

All previous arguments directed to the other prior rejections based on the other references are herein incorporated by reference.

In view of the aforementioned amendments and accompanying remarks, claims 1, 2, 4, 6, 8, 10-12, 14 and 16-18, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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